An Integrated Review of Interprofessional Rounds and Their Implications

By

Francesca Catalogne

Senior Honors Thesis

School of Nursing

University of North Carolina at Chapel Hill

April 6th, 2019

Approved:

Cecelia Roscigno, RN, MN, PhD, CNRN, Honors Advisor

Abstract

This paper aims to explore what is known on the effects, facilitators and barriers of nurses' participation in interprofessional patient rounds (IPR) on inpatient hospital units. Implementing IPR is difficult and seen as controversial, but earlier studies of IPR had shown positive quality of care effects, decreased medical errors, and improved patient safety from communication problems. We wanted to know the state of science in the last five years since we would expect broader implementation. The guidelines of Preferred Reporting Items for Systematic reviews and Meta Analyses directed this integrated review. We conducted a systematic search in the databases Current Index of Nursing and Allied Health Literature, PubMed, PsychInfo, and Embase. Articles were included if they were: (a) a research study published in English; (b) in a peer-reviewed journal; (c) published between 2013 - 2018; (d) the setting studied was an inpatient hospital unit; and, (e) the study involved a reasonable number of nurses per other providers studied. After reviewing 629 titles, abstracts, and articles, a final sample of $n = 14$ qualitative research studies were used to synthesize findings (See Figure 1 PRISMA). IPR showed positive effects for the hospital units studied, including: (a) improving nurses' job satisfaction; (b) improving working relationships between physicians and nurses; and, (c) improving patient-and family centered care. Yet, the study designs used have also constrained the generalizability. More studies should implement research designs that account for the various types of biases noted. The findings give preliminary data that could be useful to nursing administrators for improving nurse turnover, engaging nurses in patient care-planning or family advocacy, which could ultimately improve patient and family-centered care.

Keywords: interprofessional, interdisciplinary, inpatient, rounds, perceptions

Introduction

Interdisciplinary patient rounds often referred to as simply interdisciplinary rounds or interprofessional patient rounds (IPR), is a process meant to improve communication between health care providers on a team and between the patient or family and the team. Interdisciplinary patient rounds are an essential component to high quality of care, and in particular, patient safety, improved patient outcomes, and sensitive and effective patient and family-centered care in any inpatient hospital setting (Collette et al., 2017; Verhaegh et al., 2017). Medical errors are now the third leading cause of death in the United States (U.S.), with over a quarter million deaths annually (Makary & Daniels, 2016). These sentinel events most typically have one common shortcoming, faulty communication between individuals on the team and between the family and all team members, which may be associated with more than one-third (37%) of medical errors in the intensive care unit (ICU) (The Joint Commission, 2015; Wang, Wan, Lin, Zhou & Shang, 2018; Quarshie, 2014). A lack of interprofessional training, particularly in the communication processes such as IPR, immediately deprives an inpatient hospital setting of an effective process for team members to effectively communicate with and for the patient and family (citation). This process is meant to allow all members of the health care team, including the patient and family, to hear and discuss all relevant information from all perspectives, so that this information can be considered in care planning, questions can be answered, and communications between all members can improve (Tang et al. 2018). The use of IPR consists of the medical provider, including the attending physician, resident, and/or nurse practitioner, the bed-side nurse, the pharmacist, a case manager, and the patient and/or family members when available and willing to participate. The IPRs take place at least once a day, typically during the day, where the team members will discuss the patient collaboratively outside the room, and then with the patient and

possibly the family at the bedside. Bedside rounds have been a cornerstone of patient care and junior physician teaching, since the 17th century (citation). Errors in communication between providers and between patients and families and provider were linked to many health care errors and this spurred interest in IPR (Institute of Medicine [IOM], 2001), subsequent data shows it now occurs only an estimated 25% of the time (Gonzalo, Wolpaw, Lehman, & Chuang, 2014b). Advancements in technology, time constraints of the individual team members' differing schedules, and changing provider roles have caused rounds to occur more often in the hallways or conference rooms, without the patient or family (Gonzalo et al., 2014b). Because nurses spend the most time with the patient, their involvement plays a critical role in the success of IPR; and it was vital to involve participants of any studies that we included (Bhamidipatil 2015; Tang, Zhou, Chan, & Liaw, 2018).

Purpose

The purpose of this paper is to explore, critically discern, and synthesize the recent findings on IPR research published in English, so that research gaps can be identified and future clinical and research directions can be considered. Recent is defined here as during the past five years.

Methods

A rigorous process was followed throughout this project using the Preferred Reporting Items for Systematic reviews and Meta Analyses (PRISMA) guidelines was utilized (Moher, Liberati, Tetzlaff, Altman, & PRISMA Group, 2009). We collaborated with a university medical research librarian to conduct a comprehensive search of published literature relevant to our research question (Cooper, 2010). We used four of the major, most commonly used medical databases: CINAHL, PubMed, PsychInfo, and Embase. The Cumulative Index of Nursing and

Allied Health Literature (CINAHL) was included to capture published research articles specific to nursing practice. PubMed encompasses life-sciences in general, but was believed to yield research articles that may give a broader perspective on IPR practice. PsychInfo encompasses literature exploring the psychosomatic aspects of various phenomena, which was relevant to our goal because individual team member's perceptions and attitudes can critically influence IPR's implementation, utilization, and ultimately, success. Embase was included to capture any of the articles that may have been missed otherwise. The search explored what is known on IPR, including attitudes, perceptions, and its impact on facilitators and barriers to IPR. Variations or single key search terms to capture the literature included "interprofessional", "interdisciplinary", "multidisciplinary", "rounds", "experience", "attitude", "opinion", "impact", "effect" "nurse, and "physician". Using combinations of these terms, the search yield was exhausted and resulted in 629 articles in total from all databases.

The inclusion criterion were defined as: a) articles that were published in a peer-reviewed journal and research-based; (b) exploring perceptions, processes, and/or the impacts of IPR collaborations in an inpatient hospital setting with an adult population; (c) published in the last five years from 2013 to 2018; (d) written in English; and, (e) high focus on nurses, since they play an critical role in direct patient care. The last five years were chosen to investigate the most current and relevant research to the topic. Nurses are the main focus due to their distinguished roles in patient care that can only be discussed in terms of IPR if other health professionals are included such as pharmacists, social workers, and case managers. Excluded were: (a) manuscripts that were not research; (b) were not published in peer-reviewed journals; (c) studies that only evaluated the perceptions of IPR from various healthcare professional students; and, (d) studies exploring rounds through electronic means, or without a face-face interaction. It was

important to have studies that focused largely on the collaboration of rounds and not only on collaboration as a whole between team members. The initial search yielded 629 articles. The initial yield of articles was imported to a computer software program, Covidence, where they were first screened for duplicates, of which, none were found ("Covidence Review Software"). Remaining articles were systematically screened by the first author using title, abstracts and full-text for discrimination of the inclusion/exclusion criteria. The second author randomly screened 20% of the articles to confirm that the selection process was not biased. Meetings were created periodically to assess that the selection criteria were wide enough for a good capture of data relevant to the question, the selection process was standardized, relevant to the question, and was capturing a significant number of relevant studies (Cooper, 2010). If any doubt remained on inclusion of a study, the full text version was reviewed by both team members.

Multiple articles were excluded due the following reasons: (a) wrong intervention, comparator, or population (pediatrics, non-nursing related, primary care, outpatient) (b) not research based, (c) not conducted in an inpatient hospital setting, and (d) not face-to-face rounds. 533 of the 629 articles were excluded based on title and abstracts leaving 96 articles that were the reviewed independently. As a result, 82 were excluded from the study. Twenty of those included the wrong intervention such as using tools for communication rather than physical rounds, using family only, and simply not utilizing the traditional nurse and physician rounds in intervention that was studied. Seventeen were the wrong indication such as analyzing only patient, nurse or physician only and not discussing the indications for utilizing nurse-physician based rounds. Fourteen had resulted in outcomes that were not relevant to what this review is investigating such as undergraduate programs, grand rounds, and teamwork focused outcomes. Ten were in the wrong setting such as outpatient facilities, schools, or conference rooms. Nine

studied pediatric populations or students only. Five used comparators that were not relevant to this study such as telerobotic rounds, or other health care personnel that were not including the nurse and physician focus. Six used a study design that was opinion based or did not focus on rounds as the comparator and finally, one was not peer reviewed. The screening was guided by the PRISMA guidelines and can be reflected in Figure 1 of the appendix (Moher et al., 2009).

Subsequently, after rigorous examination, fourteen met the study criteria and were deemed appropriate for inclusion. Take Table 1 which is a summary of each of the fourteen works along with their purpose and findings.

Extraction of Data

Extracting data from each of the included studies was based on the following criteria: research study authors, year published, number of participants (including number of nurses, physicians and/or patients or other health care personnel, the study methods and designs, aims of the study, major findings, limitations of the study, and the recommendations from the study. The results are briefly summarized and visually organized in Table 1 of the appendix to represent the literature.

Data Analysis

Data analysis utilized the meta-ethnography method, this method calls for synthesis and analysis of qualitative research into primary and secondary themes with key terms that are found throughout the studies to easily compare and contrast the data for simple synthesis. The fourteen articles were read and reread multiple times and organized according to themes. The findings were organized into the matrix for easier visuals. With multiple independent reviews, the findings were synthesized and because the only source of the conclusions derived from the studies themselves, the credibility of the findings and themes that were created were unbiased

and strong. This method of analysis allows one to compare and consider the data in its context as qualitative data should. The list of the content to be extracted and synthesized for concepts or themes includes the findings, statistics, quality indicators such as number of participants, locations, and type of interventions, findings, designs, purposes and key concepts were also themes extracted from each article that was read multiple times and annotated with notes that would then allow for organization of each article into its corresponding theme of concepts. Making notes for quick reference allowed for quick categorization of the data and from this data, lists with comparative information was created. The themes and categories of concepts that were found were analyzed and compared to other works and are the main basis for the discussion. Other potential articles within the inclusion criteria were identified using the ancestry approach, also known as footnote chasing (Cooper, 2010). Through this, it was discovered that there were no studies that met the inclusion criteria. The PRISMA flow chart (Figure 1) presents the phases of the literature search and how we arrived at our final sample.

Results

The searches completed on all four databases, CINAHL, Embase, Pubmed and PsychINFO, produced a total of 629 articles. There were no duplicates found automatically through F1000 or Covidence ("Covidence Review Software"). Through footnote chasing (Cooper, 2010), it was determined that the search on these databases were thorough, and comprehensive as there were no studies that met the inclusion criteria through this process indicating the search was comprehensive.

Identified Themes

During the process of reading and evaluating each article, it was apparent that themes were emerging with each, regardless of patient population, setting, or researcher participants. The positive themes that emerged included patient satisfaction with this process, perceived increased teamwork, and perceived changes to physician-nurse relationship. The adverse themes that emerged from the included studies were the perceived burden to healthcare team, time constraints, organizational barriers, patient misperceptions and dissatisfaction.

Communication

Timely communication was perceived as improved with the use of IPR by having a collaborative process where the plan of care was regularly discussed between the nurses and physicians, where each understood the roles of one another and redundancies and errors were avoided. This process also was perceived as empowering each group to speak up and participate in the care plan process (Collette et al., 2017; Gausvik, Lautar, Miller, Palleria, Schlaudecker, 2015; Gonzalo, Kuperman, Lehman, & Haidet, 2014a; Menefee, 2014; Tang et al., 2018). One model of IPR, known as structured interdisciplinary bedside rounds, helps to organize and standardize the IPR process, and challenges any misperceptions by physicians that nurses are task masters. In one study that used this process, both nurses and physicians reported an improved sense of teamwork, understanding of the care plan, work efficiency, patient safety, and job satisfaction (Gausvik et al., 2015). They also found that team and family communication improved and noted that they were able to address individuals fears/worries without anyone feeling targeted or belittled (Gausvik et al., 2015). Nurses reported they felt a part of a team-dynamic, rather than someone who merely completes a to-do list given by the physician, which the nurses noted not only impacts their abilities to communicate effectively with the physician, but also with the patient and family, as the processes of communication are streamlined between

everyone involved (Gausvik et al., 2015). Another intervention was implemented through a unit checklist that would be verbally summarized with the patient at the end of bedside rounds. This increased confidence in the nurses but more importantly bridged the gap between understanding the physician's jargon and the patients understanding with what the plan was. It was effective for all staff and improved patient outcomes since clarity between communications was established early on and this proves to be a cost-effective way to prevent readmissions (Shaughnessy & Jackson, 2015). There are two pilot studies that focused on pre-post intervention of interprofessional bedside rounds. The first study by Sharma and Klocke, (2014), studied the attitude and perceptions of nurses before implementing interprofessional bedside rounds and after. In this study, nurses felt valued, equal and a part of the patient care process. Nurses also stated that medication errors and timely removal of indwelling catheters were prevented with the accessible face-to-face communication time this gave them (Sharma & Klocke, 2015). In the second pilot study, the Menefee model, by Menefee, (2014), was utilized. This known model states that rounds are led by the nurse and they are required to ask the patient their goals and then compare it to the rest of the health team including the physician. This model not only puts the patient in the center of care, it has shown benefits financially, organizationally, practically, and to patient satisfaction. It allows the nurse, who spends the most time with the patient, to input their opinions and allow for near misses to be caught during the rounding process thus decreasing errors and saving money (Menefee, 2014).

Patient Satisfaction

According to Burdick et al., (2017), regardless of the type of unit or its level of patient acuity, patients have consistently expressed that the collaboration and effort put forth by the healthcare team with IPR develops a profound level of professionalism between team members.

The authors noted that the team is better able to streamline care and respond more efficiently to patient and family questions, throughout the hospitalization as all personnel are aware of the plan and have been updated in real-time during IPR process (Burdick et al., 2017). On the contrary, in the majority of literature, there is no direct evidence that it decreases length of hospital stay, readmission rates, nor consultation times. Regardless, the areas where improved patient outcomes did occur, it unequivocally improved patient satisfaction (Gausvik et al., 2015; Gonzalo et al., 2014a; Gonzalo et al., 2014b; Hendricks, LaMothe, Kara, Miller, 2017; Sharma & Klocke, 2014; Huang et al., 2017; Tang et al., 2017)

Changes to Teamwork Dynamics

There is an increased sense of teamwork that accompanies IPR, by both nurses and physicians, however, there is consistently greater satisfaction reported from nurses in regards to their job satisfaction and sense of positivity towards their attitude of the unit they worked on, compared to physicians (Burdick et al., 2017; Collette et al., 2017; Gausvik et al., 2015; Hendricks et al., 2017; Sharma and Klocke, 2014; Tang et al., 2018) Nonetheless, physicians and the nurses mutually agree that IPR decreases unnecessary calls and pages, while streamlining patient care (Collette et al., 2017; Gonzalo et al., 2014a; Tang et al., 2018). Ostensibly, a collaborative clinical environment is an important predictor of job satisfaction for nurses and the physician despite limited interventions on ways to improve this in hospitals (Burdick et al., 2017; Collette et al., 2017; Gausvik et al., 2015; Hendricks et al., 2017; Sharma & Klocke, 2014; Tang et al., 2018). In regards to personal preferences, the literature has shown that the desire to collaborate is higher with nurses overall than physicians, which insinuates that nurses feel collaboration will affect their duties more positively (Collette et al., 2017). Physicians may not understand the role of the nurse due to their own obligations and preconceived notions of scopes

of practice and roles. Therefore, according to various literature reports, it is the cause of many inconsistencies in the perception of collaboration (Burdick et al., 2017; Collette et al., 2017; Gausvik et al., 2015; Hendricks et al., 2017; Sharma and Klocke, 2014; Tang et al., 2018). Overall, nurses are more likely to comment on respect and problems with rounding, whereas the physicians had more to say about role distinction in and of itself (Collette et al., 2017). To collaborate more effectively, the perceived importance of IPR and mutual agreement on IPR must be considered in order to start step one effectively and influentially (Have & Nap, 2014). Surprisingly, there are differences on the level of collaboration depending on the unit or specialty, as noted by Collette et al., (2017), nurses in procedural units and Emergency Departments reported higher levels of collaboration than in the Operating Room, despite the proximity of the physician in the rooms. Identifying the behaviors and unique challenges set forth by each unit is one way to improve the collaborative behavior and practice. Another facet of the nurse-physician dynamic is that of junior residents whom are orienting to the unit and require acculturation from their previous environment or practice. According to a survey of junior residents and nurses on their perceptions of IPR, it was noted that under heavy workloads for both the nurse and physician, it is difficult to sustain a strong, streamlined communication method (Tang et al., 2017). Moreover, with greater communication between health teams comes a subconscious sense of increased responsibility which is a barrier to their full commitment and sustainability to IPR process' (Collette et al., 2017; Hendricks et al., 2017; Tang et al., 2018). Multiple studies by Hendricks et al., (2017); Shaughnessy & Jackson, (2015); and Tang et al., (2018), also noted the duties of nurses and their own patient obligations conflict with the physicians. As noted, the nurse is present for the patient holistically and around the clock, thus, some physicians perceive the nurses in a more subservient role rather than a voice in the patient

care plans (Collette et al., 2017; Menefee 2014; Sharma & Klocke, 2014; Tang et al., 2018). Unintentionally creating these stereotypes leads to misinterpretations of each other's roles and severed ties in nurse-physician dynamics (Collette et al., 2017; Menefee 2014; Sharma and Klocke, 2014; Tang et al., 2018). This has affected attitudes and reciprocal respect amongst the professional roles and created a hierarchical disparity (Collette et al., 2017; Menefee 2014; Sharma & Klocke, 2014; Tang et al., 2018). Yet, nurses themselves have shown poor identities, and, while some nurses desire to have more autonomy and partake in the patients' care plan, others feel all decisions should be solely based by the physician (Tang et al., 2018). Physicians then inadvertently silence the nurses' voice because of their own identity confusion. These disparities culminate down to education, prestige and status (Collette et al., 2017; Menefee 2014; Sharma and Klocke, 2014; Tang et al., 2018). Overall, cultivating a positive, and healthy environment that fosters collaborative teamwork with educated staff, and open expectations of each role can facilitate this gap in communication (Burdick et al., 2017; Collette et al., 2017; Gausvik et al., 2015; Gonzalo et al., 2014a; Menefee 2014; Sharma & Klocke, 2014; Tang et al., 2018; Verhaegh et al., 2017).

Burden to Healthcare Team and/or Patient

Consider how the patient experiences the IPR process, as it has been shown that some patients are not always comfortable with the entire team being present in their room and some patients may prefer only speaking with one person, whilst being educated. Some patients have reported misunderstanding the purpose of IPR (for teaching of junior professionals) or disappointment if their nurse does not contribute to the plan or say much on their behalf, even when they are present for IPR (Burdick et al., 2017; Tang et al., 2018).

Time Constraints. Time is frequently a perceived barrier to implementation of IPR, ranked as significant by both the nurses and physicians. In one study, time constraints were ranked the highest out of the other barriers such as patient or provider discomforts. There are three factors considered in regards to timing that came up throughout the literature, that is: (1) nurses' perceived limited time to participate in IPR at the times they typically occur, (2) the perceived time required to conduct bedside rounds, and (3) coordinating the start time of IPR so all can participate (Hendricks et al., 2017; Gonzalo et al., 2014a). To address this issue, Huang et al., (2017), conducted a time-motion analysis of their IPR process. It was found that when the nurse was present there was a surprising decrease in rounding time, by 36 minutes, despite having a higher patient census at the time the study was conducted. On the contrary, a second study by Gonzalo et al., (2014b), rounds lasted about 8 minutes when it was done with all health professionals at the bedside which is a little more than average. Overall however, health professions assume IPR will lengthen rounding time because of the extra steps to find the nurse on duty and gather all necessary personnel before going in, this acts as a major burden toward implementing bedside rounds efficiently and consistently. (Gonzalo 2014b; Have & Nap, 2014; Hendricks et al., 2017; Huang et al, 2017; Menefee, 2014; Sharma & Klocke, 2014)

Organizational barriers. Many organizational efforts fail to create an accepted system for developing any consistency on physician rounding times and accessibility to each patient's nurse, when the physicians come to the unit. Moreover, physicians and other health professionals may not be familiar with the various education levels of a nurse, (i.e., license prepared versus associate versus bachelor prepared). Yet, despite the demands for universally educated nurses at the bachelor's level, who attain an advanced scope of knowledge and ability to actively participate in and improve care planning processes, some hospitals do not require this. This

creates an organizational barrier at the system level. The demands of clear, distinct division of responsibilities allows the physician and nurse to complement each other and work in unison without redundancy or overlap (Collette et al., 2014). Indirect facilitators to IPR have been discussed in two studies, the first by Gonzalo et al., (2014b), noted that through systematic census size caps, resident scheduling, and educational meetings, IPR could potentially increase (Gonzalo et al., 2014b). In addition, according to Hendricks et al., (2017), providers must stick around long enough to familiarize and orient to the culture of the unit in order to develop structural organization and trust and familiarity amongst other staff members. Along with developing relationships comes mutual agreement, Have and Nap, (2014) report that mutual agreement is important because IPR's are complicated by diversity in perception, education, and the duties of team members. This study is the first of its kind to investigate mutual agreement within the nurse and physician on important aspects of patient care and the process of IPR to improve it.

Patient Misperception and Dissatisfaction. Burdick et al., (2017), found some patients reported that everyone, but the physician, was there to learn and they felt that others on the team were not truly permitted to contribute to the care plan. When patients reported the physician(s) dominating the discussion, patients found it difficult to be able to pay attention to anyone else. This reported physician dynamic limited other personnel on the team in contributing and when they did it weakened his/her opinion/perspective. If the nurse was present during IPR, patients assumed it was the custom, and if the nurse was not in the room during rounds, the patient, also, felt it was the custom (Burdick et al., 2017). From the aforementioned patient perceived problem, it highlights the nature of collaboration between members is important and when it is not followed, patients are not finding IPR positively impacting their care.

Discussion

Based on the review of the literature that was included, physician-nurse collaboration is a complex interpersonal process and nursing perceptions to support this have been recognized. Collectively, the 14 included articles demonstrated the impacts of IPR from the patient's to the health care team perspective and appraisals. This review identified perceptions of improving collaboration and strategies with physicians and nurses at the ground level. Still, according to Tang et al., (2018), the need for more research studies with senior physicians and nursing management, who have a more systematic impact on policies and standards may be worthwhile. Henricks et al., (2017) studied an important factor known as *geographical cohorting*, which is permanently clustering team members to a unit to facilitate and enhance team cohesion. They noted that this is an important factor that can improve trust with other members of the IPR team and, therefore, the working dynamics and acculturation of the unit, which in turn affects IPR perceptions and collaborative practices as other researchers have reported (Ashcraft et al., 2017; Tang et al., 2018; Hendricks et al., 2017). In regards to patient perceptions, there were broad variations in patient opinions on IPR; some felt it was necessary and others felt it was of no importance to their care, compared to another literature review who found more often than not, patient satisfaction was increased (Ashcraft et al., 2017). Although, Ashcraft et al. did not explore or describe what constituted patient satisfaction, so the content validity of the concept patient satisfaction might compromise their findings. Walton, Hogdon, Johnson, and Greenfield (2015) described the concept of *patient satisfaction* as the patients' felt important and where they perceived that they were given higher quality of care, with a greater understanding of their care plan, when they reported the nurse was able to advocate for them. Studying the patient's perspective is because ultimately the delivery of care is for the benefit of the patient and family,

so their perspective matters. Continued gaps in our current knowledge need to be considered for future directions and though the literature analyzed and concluded similar themes, there were many inconsistencies that should be acknowledged as limitations.

One study by Hendricks et al., (2017) encompassed the majority of these factors, and in regards to patient satisfaction, nurse perceptions and unit knowledge, there were similar results to that of the majority of the studies (Ashcraft et al., 2017; Hendricks et al., 2017). In the majority of the studies, a questionnaire and/or interview was used for both the patient and provider. Overall it found that nurses wanted to collaborate but felt it was difficult due to time, organization, power disparities, and confidence (Ashcraft et al., 2017; Burdick et al., 2017; Collette et al., 2017; Gausvik et al., 2015; Hendricks et al., 2017; Sharma and Klocke, 2014; Tang et al., 2018). Conversely, since, the majority of the questionnaires were specific only to certain aspects of collaboration in specific settings, it may prove to be different in literature with broader surveys. Compared to the other literature, this was the way the typical a survey was conducted. Some surveys identified did not have enough evidence to conclusively report on IPR practices due to social observability bias and lack of responses from all participants (Collette et al., 2017; Gonzalo et al., 2014a; Gonzalo et al., 2014b; Hendricks et al., 2017; Menefee, 2014). The lack of responses may indicate how important staff feel IPR is to the unit. Still, the responses that were effectively captured notably mentioned streamlined communication and an overall higher job satisfaction (Collette et al., 2017; Hendricks et al., 2017; Menefee, 2014; Tang et al., 2018). In reviewing these studies, we can recommend that future researchers consider not just perspectives of what is occurring but that they also accurately reflect the true habits of the unit. Future studies should: triangulate data to improve credibility, such as obtaining perspectives of the process from both the providers, patients, and family members, who are actively involved in the patient's care;

utilize pre and post interviews; utilize observational methods by unbiased persons to capture the fidelity to the process, what is actually occurring, so that sources of variation might be better accounted for; and finally, add well established quantitative measures that take into account the plethora of factors that are known to positively or negatively affect practices and perceptions of IPR, such as: education, hierarchical and role disparities with the nurse and physician, culture of individuals associated with the unit, the type of setting, time IPR is performed and the time it takes to perform with each patient and unit, and organizational factors that might also shape the performance of IPR.

Limitations

The majority of studies used a descriptive qualitative design (Collette et al., 2017; Hendricks et al., 2017; Tang et al., 2018, Verhaegh et al., 2017), with a few of them utilizing an additional observation aspect of IPR pre and post-interventions (i.e. implementing IPR, round checklists, or post survey/interviews on IPR) (Gonzalo et al., 2014a; Gonzalo et al., 2014b; Hendrick et al., 2017; Huang et al., 2017; Sharma and Klocke, 2014; Shaughnessy and Jackson, 2015). Since the surveys and observations in these studies were completed on the unit where the nurse and physician worked, it is possible that social observational bias may have influenced the findings. Because most designs did not control for biases, findings may not truly represent actual practices on the unit or a long-term effective change (McCarney et al., 2007). Furthermore, depending on the profession, there can be differing perspectives of IPR, due to disciplinary cultural perspectives towards IPR (Collette et al., 2017; Gausvik et al., 2015; Gonzalo et al., 2015a; Henkin et al., 2016; Tang el al., 2018). Cultural perspectives towards IPR was only discussed and captured in one study Collette et al., (2017), which investigated the differences

among differing professions who work in the operating room to the other units such as the Emergency Department. Reporting and capturing aspects that describe the unit are important to others being able to discern whether the findings are applicable to a unit such as theirs. Articles were selected specific to the adult population, however, there are studies reporting on ways to improve nurse engagement in IPR on pediatric inpatient units, such as Aragona et al., (2016). Our decision to exclude IPR studies including pediatric populations could be a limitation to obtaining a deeper understanding of how IPR impacts team member relationships, quality of care, and patient and family experiences, and patient outcomes. Another exclusion that potentially limited generalizability was the nurse focused literature. Since the nurse plays a distinct role at the bedside of the patient, their perspectives on importance of care may be vastly different from other health professionals. The nurse is present around the clock with the patient and therefore plays an important part of IPR, if utilized effectively. In regards to what is known about IPR from other health professionals, such as pharmacists, social workers, and others, this paper did not compare, however, there are many studies that did and Ashcraft et al., (2017) suggested that addressing standardization of the IPR process, who is participating, and readiness to change are ways to improve other sources of variation between studies. In the studies we included, we could not find substantive evidence to conclude IPR decreases mortality, morbidity, length of stay and finances as the study concluded by Ashcraft et al., (2017). Because many studies did not report critical and detailed information on their unit type, the IPR processes they used, or important descriptors of the participants, it was difficult to discern what individual and organizational factors might be influencing the IPR processes, outcomes, or perceptions of the IPR process. For instance, describing a participant as a “nurse” is a generic term that could mean anything from a licensed practical nurse, an Associate Degree Nurse, a diploma nurse, or a

Bachelor's of Science prepared nurse, some nurses even have other advanced degrees before coming into nursing (Kershaw, 2011). Educational differences and years of experience might explain some of the variations in findings between studies and only two studies in this review documented the differences of education levels between professionals (Collette et al., 2017; Tang et al., 2018). Rigorous study designs should be considered in the future because current designs have critical flaws that limit the internal and/or external validity of findings. This review found preliminary findings that IPR was perceived to have positive clinical implications, such as decreasing unnecessary physician pages, improving patient communication, improving interpersonal work dynamics, between health professionals, and giving a strategy to improve organizational communication processes. Patients also reported being more satisfied when the whole team, especially the nurse, was present and engaged, so that they can be a conduit between the patient and family and the team members as Walton et al., (2016) has described the important role of nursing. In accordance to the other studies investigated in this paper, patient readmission rates and outcomes have not been studied explicitly in the last 5 years, with many articles referencing studies over 10 years old that show decrease in length of stay, readmission rates, and, improved patient outcomes. Conversely, one study within the last 5 years by Huang et al., (2017), quantified this and found no change in length of stay, pre and post intervention of IPR. Hendricks et al., (2017), performed a study that exemplified a comprehensive, credible design where data was gathered over an extensive period, researchers attended all meetings and met periodically to assess notes, and most importantly data was collected from several sources allowing for triangulation and robust findings.

Implications

The generalizability of this integrative review should not be generalized to all units but we can say that there is preliminary evidence that implementing IPR on some units may improve nurses' perceptions of collaboration. Though the research remains equivocal, IPR is more likely to occur when it is valued highly and nurses and physicians feel confident in their interpersonal collaborative skills. The published research on the effects of IPR processes influencing team collaboration as a whole is growing. Yet, there are limited studies implementing tools for standardizing and measuring effects of the IPR processes. Developing strategies to implement critical IPR processes successfully on a broader level may be difficult, as there can be local and regional differences in registered nurse's entry-level training (ADN versus BSN), years of experience, and nurse to patient staffing levels. The reported benefits to nursing satisfaction suggest that hospital administrators could use this strategy to reduce nursing turnover and improve nurses' long-term career satisfaction. Yet, nurses' active participation must be respected, desired, and considered necessary in order for IPR to be successful. Research into teamwork practices is vital to improving health care overall and is encouraged. Each member of the health care team and the patient and their family brings about a distinct perspective on a care plan and through collaboration via a process such as IPR, it is possible to merge these diverse viewpoints to formulate a patient centered plan. Cody, Sullivan-Bolyai, and Reid-Ponte, (2018) investigate the importance of communication with the family or primary caregiver along with the primary involvement of the nurse who acts as a channel between the family and the physician. Many studies in this integrative review were excluded due to the lack of nursing involvement in rounds. Additionally, family member involvement has been limited in the studies analyzed, yet, the family member plays an important advocacy role for the patient in the hospital and at home

for continued care. Shared decision making serves an important role in communication and should be considered for future studies.

Conclusions

IPR is a multifaceted process that can improve the communication between team members, and between the team and the patient and family, but standardizing that process for each location may be difficult, given the diversity of individual, unit, and hospital system cultures, diversity of personnel demands, and patients' and families' health literacy levels. Interprofessional rounding faces many distinct challenges that must be overcome in a methodical and purposive manner, in order to gain sustainability and practicality. Nursing administrators should consider that there is preliminary evidence to suggest that when the IPR process involves nurses in a purposive way, nurses report greater job satisfaction, patients are more satisfied with their hospital stay, and there is overall, perceived to be an environmental culture that appreciates the value of interpersonal communication, in order to engage, expedite, and streamline care that is of high quality and meaningful to patients and the family.

Acknowledgements

I would like to thank Cecelia Roscigno, RN, MN, PhD, CNRN for her consistent support, patience, and collaboration throughout the writing process. In addition, I would like to recognize Elizabeth Moreton, MLS (clinical librarian), for introducing me to the process of search terms on databases' and teaching me the process of creating a strong search on the most well-known databases.

References

Ashcraft, S., Bordelon, C., Fells, S., George, V., Thombley, K., & Shirey, M. R. (2017). Interprofessional Clinical Rounding. *Journal for Healthcare Quality,39*(2), 85-94. doi:10.1097/jhq.0000000000000039

Aragona, E., Ponce-Rios, J., Garg, P., Aquino, J., Winer, J. C., & Schainker, E. (2016). A Quality Improvement Project to Increase Nurse Attendance on Pediatric Family Centered Rounds. *Journal of Pediatric Nursing,31*(1). doi:10.1016/j.pedn.2015.08.005

Bhamidipati, S. (2015). Interdisciplinary Admissions and Rounding to Improve Patient Outcomes. Retrieved from https://www.shmabstracts.com/abstract/interdisciplinary-admissions-and-rounding-to-improve-patient-outcomes/

Burdick, K., Kara, A., Ebright, P., & Meek, J. (2017). Bedside Interprofessional Rounding. *Journal of Patient Experience,4*(1), 22-27. doi:10.1177/2374373517692910

Cody, S. E., Sullivan-Bolyai, S., & Reid-Ponte, P. (2018). Making a Connection: Family Experiences With Bedside Rounds in the Intensive Care Unit. *Critical Care Nurse,38*(3), 18-26. doi:10.4037/ccn2018128

Cooper, H. M. (2010). *Research synthesis and meta-analysis: A step-by-step approach* (4th ed., Vol.2). Los Angeles ; London ; New Delhi ; Singapore ; Washington DC: SAGE.

Collette, A. E., Wann, K., Nevin, M. L., Rique, K., Tarrant, G., Hickey, L. A., . . . Thomason, T. (2017). An exploration of nurse-physician perceptions of collaborative behavior. *Journal of Interprofessional Care,31*(4), 470-478. doi:10.1080/13561820.2017.1301411

Covidence (2019). Covidence systematic review software [Software]. Melbourne, Australia: Veritas Health Innovation Ltd. Available from https://www.covidence.org/

Forbes, T. (2017). A GROUNDED THEORY STUDY TO UNDERSTAND NURSE AND RESIDENT PHYSICIAN COMMUNICATION DYNAMICS. 1-114. Dissertation

Gausvik, C., Lautar, A., Miller, L., Pallerla, H., & Schlaudecker, J. (2015). Structured nursing communication on interdisciplinary acute care teams improves perceptions of safety, efficiency, understanding of care plan and teamwork as well as job satisfaction. *Journal of Multidisciplinary Healthcare,*33. doi:10.2147/jmdh.s72623

Gonzalo, J. D., Kuperman, E., Lehman, E., & Haidet, P. (2014a). Bedside interprofessional rounds: Perceptions of benefits and barriers by internal medicine nursing staff, attending physicians, and house staff physicians. *Journal of Hospital Medicine,9*(10), 646-651. doi:10.1002/jhm.2245

Gonzalo, J. D., Wolpaw, D. R., Lehman, E., & Chuang, C. H. (2014b). Patient-Centered Interprofessional Collaborative Care: Factors Associated with Bedside Interprofessional Rounds. *Journal of General Internal Medicine,29*(7), 1040-1047. doi:10.1007/s11606-014-2817

Have, E. C., & Nap, R. E. (2013). Mutual Agreement Between Providers in Intensive Care Medicine on Patient Care After Interdisciplinary Rounds. *Journal of Intensive Care Medicine,29*(5), 292-297. doi:10.1177/0885066613486596

Hendricks, S., Lamothe, V. J., Kara, A., & Miller, J. (2017). Facilitators and Barriers for Interprofessional Rounding. *Clinical Nurse Specialist,31*(4), 219-228. doi:10.1097/nur.0000000000000310

Huang, K. T., Minahan, J., Brita-Rossi, P., Aylward, P., Katz, J. T., Roy, C., . . . Boxer, R. (2017). All Together Now: Impact of a Regionalization and Bedside Rounding Initiative on the Efficiency and Inclusiveness of Clinical Rounds OR. *Journal of Hospital Medicine,12*(03), 150-156. doi:10.12788/jhm.2696

IOM (Institute of Medicine). Washington, D.C: National Academy Press; 2001. Crossing the Quality Chasm: A New Health System for the 21st Century.

Joint Commission, (2015, April 29). Joint Commission Online. Retrieved from https://www.jointcommission.org/assets/1/23/jconline_April_29_15.pdf

Kershaw, B. (2011). The Future of Nursing – Leading Change, Advancing Health The Future of Nursing – Leading Change, Advancing Health. *Institute of Medicine,26*(7), 31-31. doi:10.7748/ns2011.10.26.7.31.b1274

Makary, M., & Daniel, M. (2016, May 03). Medical error-the third leading cause of death in the US. Retrieved from https://www.bmj.com/content/353/bmj.i2139

Menefee, K. S. (2014). The Menefee Model for Patient-Focused Interdisciplinary Team Collaboration. *JONA: The Journal of Nursing Administration,44*(11), 598-605. doi:10.1097/nna.0000000000000132

McCarney, R., Warner, J., Iliffe, S., Haselen, R. V., Griffin, M., & Fisher, P. (2007). The Hawthorne Effect: A randomized, controlled trial. *BMC Medical Research Methodology,7*(1). doi:10.1186/1471-2288-7-30

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Medicine*, *6*(7), e1000097. doi:10.1371/journal.pmed.1000097

Pritts, K. E., & Hiller, L. G. (2014). Implementation of Physician and Nurse Patient Rounding on a 42-Bed Medical Unit. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/26281644

Quarshie, J. (2014). An Inpatient Process to Improve Nurse-Physician Communication. *College of St. Scholastica*.

Ratelle, J., Henkin, S., Chon, T., Christopherson, M., Halvorsen, A., & Worden, L. (2016). Improving nurse-physician teamwork through interprofessional bedside rounding. *Journal of Multidisciplinary Healthcare,*201. doi:10.2147/jmdh.s106644

Sharma, U., & Klocke, D. (2014). Attitudes of nursing staff toward interprofessional in-patient-centered rounding. *Journal of Interprofessional Care,28*(5), 475-477. doi:10.3109/13561820.2014.907558

Shaughnessy, L., & Jackson, J. (2015). Introduction of a new ward round approach in a cardiothoracic critical care unit. *Nursing in Critical Care,20*(4), 210-218. doi:10.1111/nicc.12149

Tang, C. J., Zhou, W. T., Chan, S. W., & Liaw, S. Y. (2017). Interprofessional collaboration between junior doctors and nurses in the general ward setting: A qualitative exploratory study. *Journal of Nursing Management,26*(1), 11-18. doi:10.1111/jonm.12503

The Joint Commission. *Sentinel Event Data – Root Causes by Event Type*. Oakbrook Terrace, IL: The Joint Commission; 2014.

Verhaegh, K. J., Seller-Boersma, A., Simons, R., Steenbruggen, J., Geerlings, S. E., Rooij, S. E., & Buurman, B. M. (2017). An exploratory study of healthcare professionals' perceptions of interprofessional communication and collaboration. *Journal of Interprofessional Care,31*(3), 397-400. doi:10.1080/13561820.2017.1289158

Walton, V., Hogden, A., Johnson, J., & Greenfield, D. (2016). Ward rounds, participants, roles and perceptions: Literature review. *International Journal of Health Care Quality Assurance,29*(4), 364-379. doi:10.1108/ijhcqa-04-2015-0053

Wang, Y., Wan, Q., Lin, F., Zhou, W., & Shang, S. (2018). Interventions to improve communication between nurses and physicians in the intensive care unit: An integrative literature review. *International Journal of Nursing Sciences,5*(1), 81-88. doi:10.1016/j.ijnss.2017.09.00

Table 1: *Summary of Articles Included in Literature*

Study author	Year	Sample participant	Study design	Aim	Major Finding	Limitations	Recommend
1-Burdick	2017	35 patients surveyed. 62 staff.	Convenience sample based on patient population and time. Descriptive study	To investigate patients' perceptions of the practice of bedside interprofessional rounding	Patients had many misperceptions on the rounding process, patients regard the clinical information shared during IPR as priority for them, and many patients shared that the impact/value of IPR was satisfactorily high with many stating they felt cared for and understood. However, several also felt it made no difference to their care.	Small sample size. Single location. Only CV patients. IR led by hospitalists only. Single researcher conducted the interviews and was not a part of the healthcare team. Individual experiences were not observed in the patient, which means variability of the quality/process is possible. There was no data collected on the number of IRs experienced by patients that may have been a factor in responses.	Further research into the factors that may affect how rounds are perceived and more research regarding patient experiences with IR and the methods used.

2-Collete	2017	82 physicians and 355 nurses	Convenience sampling. Non-experimental, cross sectional, survey, both statistical and qualitative data.	To assess the nurse-physician collaboration at the micro, meso, and macro level.	The following themes emerged: rounding, roles, respect, and communication, conceptual model of Collaboration is a multi-level process influenced within the micro, meso, and macro systems. Physicians generally perceived greater collaboration than nurses. Nurse ratings were the lowest in the operating room and the highest in the emergency department.	Single site that is non-academic. Low physician response, greater for nurses. Physician sample had low statistical power which may have introduced bias and Type II error. Possible survey overload as the hospital conducts surveys often. Text-based responses was never validated by member checking due to the anonymity of responses.	Theme validation could have been accomplished with focus groups. Supportive strategies to merge the unique strengths of both professions into opportunities for improved collaboration. The changing climate of nurse-physician collaboration with new technologies needs to be further explored. Attitudes or desire for collaboration is another important element that should be measured in future studies.
3-Gausvik	2015	24 staff 38 control group staff	* methods study convenience sample	To measure perceptions of teamwork, communication, understanding of the plan for the day, safety, efficiency, and job satisfaction	Staff rated the interprofessional nature of SIBR significantly better in all eight areas such as comfortable to bring up concerns about the patient, working in a team to take care of the patient, understood the patient plan for the day, communication improved, rounds improved efficiency of care, SIBR improved safety for their	Small sample size with only a 2-week time period of data collection. Survey results may not be generalizable to all hospital settings. Only 3 patients responded to their survey responded.	Further research should seek to explore what aspects of SIBR are most beneficial, and which aspects of communication are key to significant results. Further research should aim to tie these results to patient safety and quality data. The SIBR method seemed to also increase patient and family

					patients, IPR increased their own job satisfaction.		satisfaction, and future studies should seek to explore that effect as well.
4-Gonzalo	2014	149 surveys completed from nurses and physicians	Observational cross-sectional survey.	To evaluate the perceptions of nurses, attending physicians, and house staff physicians regarding the benefits/barriers to bedside interprofessional rounds.	Nurses perceived greater benefit for bedside interprofessional rounds than physicians, all providers perceived coordination/teamwork benefits higher than outcomes.	Limited time, systems issues. Single site and specialty. IPR has been a strong focus in this facility, so those new to it may not have the same responses Possibility of social desirability bias exists, thereby limiting accuracy	Less costly interventions, such as tailoring provider schedules, prescheduling patient rounding times, and geographic colocalization of patients and providers may be more feasible. Future efforts should address the quality of collaboration and unit structures hindering it.
5-Gonzalo	2014	412 surveys from 25 attending physicians surveyed	Observational descriptive study	To examine the incidence of and time spent in rounds, and factors associated with increased occurrence of IPR such as resident and	Senior residents are more likely to perform IPR. IPR occurred more with lower census sizes suggesting team workload is a factor. This finding is consistent with prior work that suggests IPR are limited by several factors, including team census size,	Single site. Validity of the instrument was not rigorously assessed. institution. Surveys were not anonymous, raising the possibility of both social desirability bias and	Attention should be given to systems-based barriers to IPR in order to foster an environment that is both suitable and comfortable for interprofessional collaborative care to occur.

				physician level of experience, census size and call day.	geographic dispersion of patients, and time limitations	the Hawthorne effect.	
6-Have	2014	5 intensivists, 14 junior physicians, and 45 ICU nurses. 134 surveys completed	A single-center survey study of 30 questions on how to manage tasks such as respiration, circulation, lab tests, and sedation. Mixed methods study	To explore the perceptions of intensivists, junior physicians, and nurses about patient care after IPR in the intensive care unit (ICU) to determine mutual agreement. This study was done in 4 different ICU's.	Recommending IPR without mutual agreement between providers on patient care disrupts safety. There was a low agreement, as measured directly after the IPR between the nurses and physicians. IPR support improved quality of patient care in the ICU	Junior physicians rotated every 3 months, and their experience varied from 2 weeks up to almost 3 months, some did not answer the survey. No demographic information was collected. Only ICU unit analyzed at one site therefore lacking generalizability.	Future research into the agreement of care after IPR should be studied since this was the first of its kind. Research on the differences education and experience can have on IPR usefulness and perception. Do not utilize IPR if research and mutual agreement is not established. Testing the simple, yet practical survey from this study in other ICU's should be implemented truly test its effectiveness.
7-Hendricks	2017	Clinical leadership teams; nurses, doctors, nurse practitioners, physician	A qualitative descriptive method, participant observation in rounds, focused meetings, and exit	The purpose of this qualitative study was to describe the barriers and facilitators for interprofessional	Factors such as low turnover and professionals that knew each other well, robust structure of rounds, and awareness of one and another's role and responsibilities, high value of interprofessional rounds, high confidence in one's	Only 18-month study from one hospital and from 3 primary sources which may have caused bias as the participants work on the unit and are fully aware of the	Future research studies should examine different types of IPR, for example, at the bedside versus a meeting, who should be present, and IPR should be created. Finally, studies should look at which patient

		assistants, social workers, pharmacists of 130 participated in observation across 4 acute care units in a large urban hospital.	interviews of interprofessional team members.	patient-centered rounding	own skills, aligning with the hospitals mission for systematic support, ample time without disruptions if possible, clustering teams into a cohort, increasing and readiness for change through innovation are ways to improve collaboration.	goal of the study thus creating bias. Also, the participants were aware that they were being observed. The study did not look through the point of view of the patients, and was only from the professionals. The study design did not allow for conclusions on the association between facilitators and barriers and outcomes of IPR.	population and families benefit the most. More research on how geographical cohorting affects IPR should be further investigated.
8-Henkin	2016	Physicians (both internal medicine residents and attendings) and nurses from four general medicine services on one 36-bed	QI project	To improve the culture of teamwork on a general medical teaching unit at our institution, we designed a quality improvement (QI) project that incorporated nurses into daily bedside morning	We found that the implementation of IBR led to improvement in several domains of teamwork between nurses and physicians	Single site. SAQ responses were not linked to demographic data and were submitted anonymously, and therefore, they could not be paired for analysis. Response rates from nursing staff were lower than from residents and	Promote the use of a white board in the patient's room to allow for asynchronous communication, when IBR is not possible. Further work is required to understand the impact of IBR on patient satisfaction and outcomes.

		nursing unit of Mayo Clinic Hospital		rounds with the physician team.		attendings, which likely limited the power with which to detect a significant improvement in SAQ scores for that group.	
9-Huang	2017	Four general medical teams were evaluated before the interventio n and 5 teams afterward.	Prospective pre–post analysis	We used time–motion analysis to investigate how regionalization of medical teams and encouragement of bedside rounds affect participants on rounds and rounding time.	Proportion of time the nurse was present on rounds increased from 24.1% to 67.8% ($P < 0.001$), and proportion of total bedside rounding time increased from 39.9% to 55.8% ($P < 0.001$). Mean total rounding time decreased from 3.0 hours to 2.4 hours ($P = 0.01$), despite a higher patient census. Create regionalized care teams and encouraging focused bedside rounds increased the proportion of bedside time and the presence of nurses on rounds. Rounds were shorter despite higher patient census.	1 team did not receive an evaluation pre-test. First, the pre–post design made it difficult to exclude other changes may have affected outcomes. Second, multipronged interventions include care team regionalization, encouragement of bedside rounding with nurses, call structure changes (from 4 days to daily admitting), and attendings' reading of admission notes before rounds.	Focus on the effects of clinical outcomes, provider and interdisciplinary opinions of communication, patient engagement and satisfaction of workflow. Moreover, focusing on patient care and analysis of the content of rounds and their association with patient and educational outcomes. Last, a study to see if the effects identified can be sustained.

						Thus, finding what factor contributed to the results was difficult. Time was not recorded while prepping for the rounds and the decrease in total rounding time could have been due to increases in time spent preparing for rounds.	
10-Menefee	2014	30 inter-disciplinary health members	Pilot	Increase collaboration among the members of the interdisciplinary care team though the patient's care plan.	Reductions in readmission rates, increases in patient satisfaction have occurred over 3 separate hospitals. The discovery of individual patient care situations that need team intervention member. Care was streamlined. Time was saved and thus caused a decreased length of stay because results and physician orders were able to be done in real time. More importantly, the team was able to catch near misses as each member was	Since it was a pilot study, it was only done in one acute care unit. However, it was only on patients with a short LOS and specifically cardiac and pulmonary in nature which may not make it generalizable. The main focal point for the plan of care was the patients' daily goal, which can be biased if the patient is aware of the study. It was	Formal training on the skills and knowledge required to implement this model successfully and consistently. Recommend to complete the Pilot in other specialties and with a broader age range of patients. Obtain clearer baseline measures prior to implementing a PILOT study in order to have confident stats to compare. Hold training sessions prior the PILOT study to assess the nurse's knowledge on their role in the

						important that the nurses understood their role for effectiveness. There were additional performance improvement efforts ongoing during the pilot phase of the project that may have contributed to the outcomes.	integration of care for patients.
11-Sharma	2014	90 nurses surveyed.	Pilot pre-post study. The hospitalist, bedside nurse, patient and their family (when present) discussed the patient's condition and mutually formulated the care plan for that day	The main purpose was to study and improve the perceived communication and interprofessional care provided by the hospital medicine providers with nursing staff.	IPR's were interactive, educational and conducive to improving partnership. Nurses were able to effectively review the care plan with patients, their families, transition patient care and properly answer questions. Staff felt like an equal partner in patient care with a valued opinion while improving morale. Medication errors and timely removal of catheters were prevented because of IPR's communication.	The response rate for the nurses was only 61/90 (67%). Only hospitalists included. There were no other collections of patient outcomes	More clarification of roles and duties to create a therapeutic alliance. IPR can be improved by strategies that improve relationships like workshops, special interest groups and education. Especially when electronic systems reduce interactive time with nurses. Need for designing a collaborative system that prioritizes, improves workflow, promotes patient autonomy and improves relationships.

12-Shaughnessy	2015	69 nurses and patients	69 nurses and 23 on the medical team given a questionnaire. An observational audit of seven ward rounds reviewing 69 patients.	Using a ward round checklist and a bedside nurse verbal summary to the patient confirming their goals and comparing to the medical team to confirm congruency to improve patient safety and care.	97% of nurses agreed there was improved clarity with verbal summarizing. 90% felt that it had improved patient care. 87% of the medical team saw improvement in the attendance of the nurse on rounds. Reduced omissions were noted. There was an enhanced contribution made by nurses during the ward round.	large variation in the number of observations between the pre and post audits due to limited time during rounds. There was an inability to undertake a larger sample in the post-audit and therefore there was also a variation in this.	Find strategies for increasing the contribution of other members of the medical team in order to improve and further enhance patient care. The introduction of a checklist can help prevent omissions and is a practical yet effective initiative to improve patient safety. Finding out how to improve communication with patients during rounds should be studied.
13-Tang	2017	11 physicians, 8 nurses	Purposive sampling, an exploratory descriptive qualitative design was used in this study.	To explore the collaboration experiences of junior physicians and nurses in the general ward setting	relatively small sample size at one acute tertiary hospital. Interviewers are from the nursing profession; therefore, the medical participants may be less inclined to make negative comments about the nursing profession.	How to make the daily ward round process more effective. Focus on improving the professionalism amongst nurses in order to foster a collaborative	Strategies to improve the interprofessional collaboration between junior physicians and nurses. Nurse leaders can promote collaboration, and practice the presence of a professional nursing environment that

						environment that voluntarily wants to partake in rounds.	supports nurses to exercise autonomy. An interprofessional simulation training in ward rounds may be a relevant scenario for teaching nurses and physicians on how to communicate and collaborate effectively.
14-Vernaugh	2017	inter-professional panel of healthcare professionals	purposive sampling exploratory qualitative study design	the objective of this study was to explore perceptions of healthcare professionals (nurses, physicians, and other staff members) on effective interprofessional communication and collaboration during clinical rounds.	Nurses and physicians were the main participants of the decision-making process during rounds and had different views on care planning. Participants disagreed about patients' role in decision-making. Some healthcare professionals only wanted to inform patients about the outcome of the round, others wanted to give the patient an active role in the decision-making process during the round.	Small explorative study at a single university teaching hospital, study is also limited as it did not explore the views of patients and other healthcare professionals such as therapists or social workers.	Future research should explore the views of patients on effective communication and collaboration during rounds

Appendix

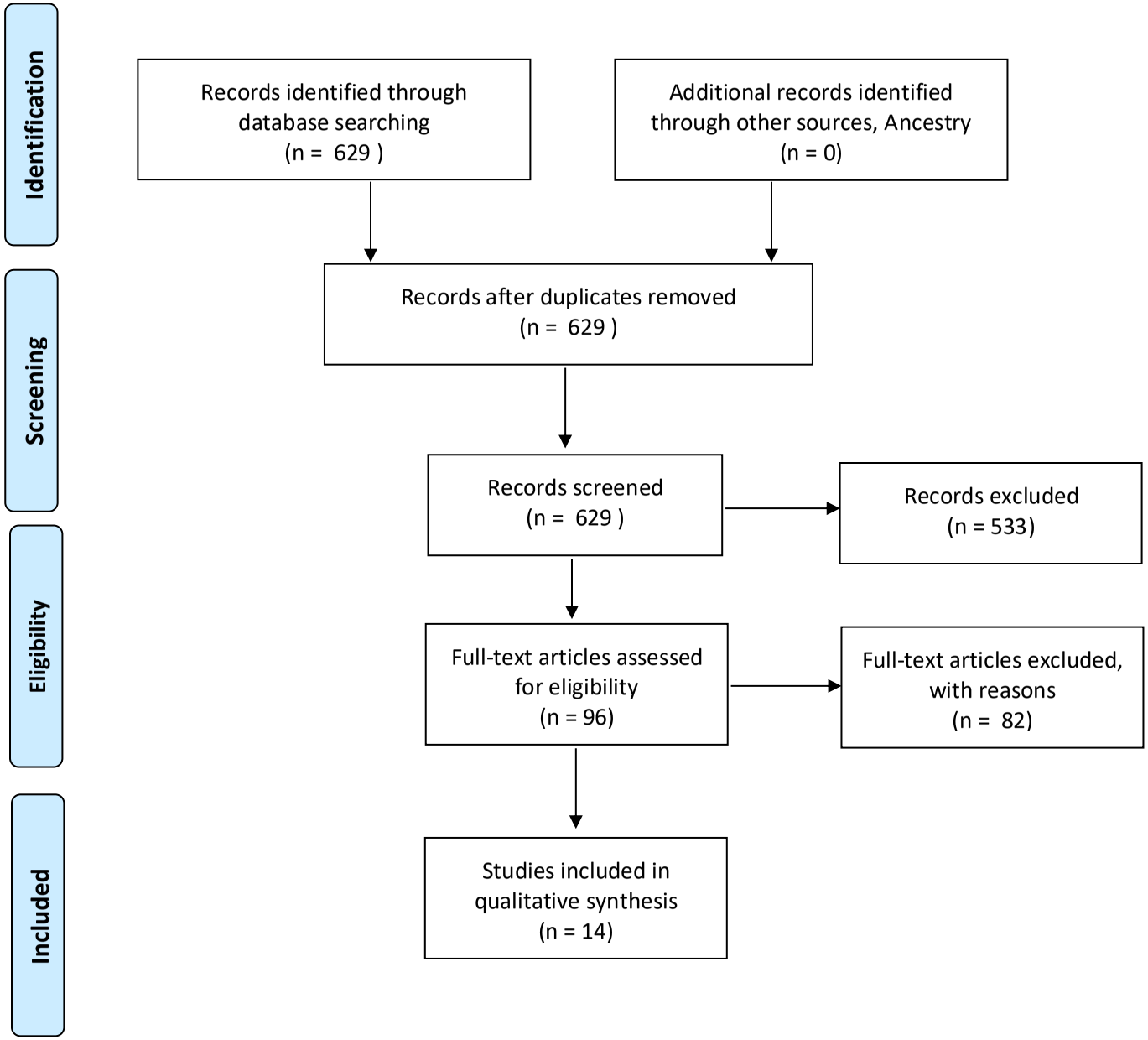

Figure 1. PRISMA Diagram